

U.S. Serial No. 10/689,103
Filed: October 20, 2003
RESPONSE TO OFFICE ACTION
Page 11

REMARKS

This Amendment and Response amends claims 1, 19 and 32. Claims 1-32 are pending in the application.

I. Preliminary Remarks

In a busy operating room, reference structures often become inadvertently displaced. When this happens, the reference structures provide inaccurate information about the location, position, and orientation of the reference points and the accuracy and safety of the surgical procedure may be jeopardized. Even when an attempt is made to place the reference structures back into their original position, it is virtually impossible to relocate the original location, position and orientation with precision computer-assisted surgery requires. Col. 2, para. [0012].

As stated in the Summary, the invention of the present application includes frame attachments with portions that, when displaced or dislodged, will readily disconnect from a base secured to the reference point in a coordinate system *and be able to be precisely repositioned*. Col. 2, para. [0015]. According to various aspects of the invention, indicia can be used to track certain points in a coordinate system for use in computer-assisted surgery. If the indicia become dislodged during a surgical procedure, they can be repositioned *without the need to reregister their positions in the coordinate system*. Thus, instead of needing to rescan a patient in order to ensure exact coordination of indicia after they have changed position or orientation, the indicia may merely be replaced and the surgery continued without further interruption.

U.S. Serial No. 10/689,103
Filed: October 20, 2003
RESPONSE TO OFFICE ACTION
Page 12

The Action has rejected the claims of the application using U.S. Patent No. 6,993,374 to Sasso. In Sasso, reference devices are rigidly fixed to a patient and then scanned into the coordinate system. Sasso does not teach or suggest using a fault interface which allows the reference devices to become dislodged and replaced during surgery without the need for generating a new scanned image with the new position of the displaced reference device.

II. 35 U.S.C. § 102 Rejections

A. Sasso

The Action rejects claims 1, 2 and 4-32 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,993,374 to Sasso. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. MPEP §2131.

In Sasso, a bone anchor (200) cooperates with a cannula (50) to form a mounting instrument suitable for rigidly mounting image navigation reference devices to a patient. Col. 6, lines 59-62. The cannula (50) uses a coupling mechanism (54) to engage the image navigation reference devices so that the reference devices are mounted in a substantially fixed position relative to the patient's bone. Col. 5, lines 29-33. Once the reference devices have been attached to the patient, that patient is scanned and imaged and the image is loaded into a surgical navigation system processor. The scanned radiographic image may then be used during an image-guided surgical procedure. Further intra-procedural scans may be taken to verify or update the initial scanned image.

U.S. Serial No. 10/689,103
Filed: October 20, 2003
RESPONSE TO OFFICE ACTION
Page 13

The Action states that Sasso anticipates all *claimed* features of claims 1-32. As a clarification, independent claims 1, 19 and 32 have been amended to positively recite the fault interface of the present invention. Thus, each of these claims now positively claim a fault interface which includes a failure strength smaller than the failure strength of the reference frame or connection between the reference frame and item. The fault interface allows the indicium or fiducials to be repositioned without the need to reregister them in the system after the interface has failed.

In contrast to the present invention, Sasso does not disclose any feature which allows its reference devices to be repositioned without the need to reregister them in the coordinate system after one is dislodged during a procedure. As stated in Sasso, reference devices are rigidly fixed to a patient and then scanned into the coordinate system. Sasso does not teach or suggest using a fault interface which allows the reference devices to become dislodged and replaced during surgery without the need for generating a new scanned image with the new position of the displaced reference device. As Sasso does not teach or suggest this feature, Applicants respectfully submit that independent claims 1, 19, 31 and 32, and claims 2-18 and 20-30 which depend therefrom, are not anticipated by nor made obvious by Sasso. Applicants respectfully request that the rejections be withdrawn.

In addition, Applicants respectfully submit that claim 32 is in condition for immediate allowance at least because Sasso fails to disclose a process for conducting computer aided surgery which includes displacing at least one indicium that causes a fault

U.S. Serial No. 10/689,103
Filed: October 20, 2003
RESPONSE TO OFFICE ACTION
Page 14

interface to fail, repositioning the indicium into correct position and orientation, and continuing surgery without the need to reregister the indicium.

In conclusion, as Sasso does not teach each and every element of claims 1-32, Applicants respectfully submit that the Action's rejection of these claims is improper and should be withdrawn.

III. 35 U.S.C. § 103

A. Sasso

Claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Sasso. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. MPEP §2142.

The Action admits that Sasso fails to disclose infrared sensors but states that it would have been obvious to one having an ordinary skill in the art at the time the invention was made to choose to use an infrared design. As detailed above, Sasso does not teach or suggest reference devices which may be displaced and replaced during a surgical procedure without the need to reregister them in the coordinate system. Thus, it can not anticipate, nor render obvious, the present invention.

U.S. Serial No. 10/689,103
Filed: October 20, 2003
RESPONSE TO OFFICE ACTION
Page 15

In conclusion, as Sasso does not teach or suggest each element of claim 3, Applicants respectfully submit that the Action's rejection of these claims is improper and should be withdrawn.

U.S. Serial No. 10/689,103
Filed: October 20, 2003
RESPONSE TO OFFICE ACTION
Page 16

CONCLUSION

Applicants respectfully submits that claims 1-32 are in condition for immediate allowance, and request early notification to that effect. If any issues remain to be resolved, the Examiner is respectfully requested to contact the undersigned at 404.532.6938.

Respectfully submitted,



Catherine E. Hart, Reg. No. 54,095
Attorney for Assignee

Kilpatrick Stockton LLP
1100 Peachtree Street, Suite 2800
Atlanta, Georgia, 30309-4530
Phone: 404-532-6938